

1. (original) A process for preparing polyoxymethylene by contacting a formaldehyde source with a catalyst of the formula I



where

M is Ti, Zr, Hf, V, Nb, Ta, Cr, Mo, W, Mn, Re, Fe, Ru, Os, Co, Rh or Ir,

Cp is a cyclopentadienyl ligand $\text{C}_5\text{H}_{(5-u)}\text{R}^1_u$, where

u is from 0 to 5 and

R^1 is alkyl, alkenyl, aryl, heteroaryl, aralkyl, COOR^2 , COR^2 , CN or NO_2 , and

R^2 is H, alkyl, aryl or aralkyl,

v is 1 or 2,

each L is independently a nitrile, CO or a ligand displaceable by CO,

w is an integer from 0 to 4,

Z is an anion, and

m and n are each independently an integer from 1 to 3.

2. (original) A process as claimed in claim 1 where

Cp is a cyclopentadienyl ligand $C_5H_{(5-u)}R^1_u$, where

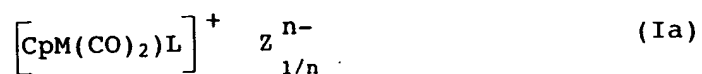
R^1 is methyl, CHO, COCH₃, COC₂H₅, COOCH₃, COOC₂H₅, CN or NO₂.

3. (currently amended) A process as claimed in claim 1 ~~any of the preceding claims~~ where M is Mo or W.
4. (currently amended) A process as claimed in claim 1 ~~any of the preceding claims~~ where each L is selected independently from nitriles, CO, alkenes, phosphines, amines, ethers, carboxylic esters, cyclic carbonic esters, epoxides, hemiacetals, acetals and nitro compounds.
5. (currently amended) A process as claimed in claim 1 ~~any of the preceding claims~~ where Z is a halide, sulfonate of the formula OSO₂R, where R is alkyl, partially or fully halogenated alkyl or aryl, carboxylate, complexed borate, complexed phosphate, complexed arsenate or complexed antimonate.
6. (original) A process as claimed in claim 5 where Z is chloride, acetate, trifluoroacetate or

trifluoromethanesulfonate.

7. (currently amended) A process as claimed in claim 1 ~~any of the preceding claims~~ where the formaldehyde source is formaldehyde, trioxane or paraformaldehyde.

8. (original) A catalyst of the formula Ia



where

M is Mo or W,

Cp is a cyclopentadienyl ligand $\text{C}_5\text{H}_4\text{R}^1$ or $\text{C}_5\text{H}_3\text{R}^1_2$, where R^1 is CHO, COCH₃, COOCH₃ or COOC₂H₅,

L is CO or CH₃CN,

Z is trifluoromethanesulfonate, trifluoroacetate, tetrafluoroborate, hexafluorophosphate or hexafluoroantimonate and

n is an integer from 1 to 3.

9. (original) A catalyst as claimed in claim 8 where

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Cp is a cyclopentadienyl ligand $C_5H_4R^1$ where R^1 is CHO, $COCH_3$, or $COOCH_3$, or is a cyclopentadienyl ligand $C_5H_3R^1_2$ where R^1 is $COOC_2H_5$.